OIPE
MAY 2 7 2005
PATENT & TRADEMARK OFFICE

Amendments to the Claims

1. (presently amended) A method used during the formation of a semiconductor device comprising:

implanting a first region of a semiconductor material with a dopant to a first concentration and implanting a second region of the semiconductor material with the dopant to a second concentration, wherein the first concentration is greater than the second concentration; and

exposing the first and second regions of the semiconductor material to an oxidizing ambient comprising:

a partial pressure of steam, wherein the partial pressure of steam is proportional to an oxidation ratio of the first region to the second region, and wherein the oxidation ratio is greater than one and variable with variations in the oxidizing ambient;

a temperature of between about 700°C and about 1100°C;

a hydrogen gas (H_2) flow rate of between about 0.01 SLM and about 20 SLM;

an oxygen gas (O_2) flow rate of between about 0.001 SLM and about 5 SLM; and

a volumetric ratio of H_2O vapor to H_2 gas of between about 0.05 to about 0.15.

2. - 3. (canceled)

4. (presently amended) The method of ~~3~~ claim 1 wherein the oxidizing ambient further comprises a pressure of between about 5 mTorr and about 2,000 Torr.

5. (original) A method for forming a flash memory device comprising:

forming at least a portion of a transistor device comprising a doped source region, a doped drain region, a gate oxide layer, and a floating gate layer, wherein the source region is more heavily doped than the drain region;

exposing the source region and the drain region to an oxidizing ambient which oxidizes the source region at a faster rate than the drain region, wherein the oxidizing ambient is selected to produce an oxidation ratio of the source region to the drain region, wherein the oxidation ratio is variable and greater than one depending on the oxidizing ambient selected.

6. (original) The method of claim 5 wherein the oxidizing ambient is selected to produce a desired partial pressure of steam to select the ratio.

7. (original) The method of claim 5 wherein the oxidizing ambient comprises:

a hydrogen gas (H_2) flow rate of between about 5.0 SLM and about 10 SLM; and

an oxygen gas (O_2) flow rate of between about 0.24 SLM and about 0.65 SLM

8. (original) The method of claim 5 wherein the oxidizing ambient further comprises a volumetric ratio of H_2O vapor to H_2 gas of between about 0.05 to about 0.15.

9. (original) The method of claim 8 wherein the oxidizing ambient further comprises a pressure of between about 760 Torr and about 820 Torr.

10. (original) The method of claim 5 wherein as the source and drain regions oxidize during the exposure of the source region and the drain region to the oxidizing ambient, the oxide encroaches between the gate oxide and the floating gate from the source region and from the drain region.

11. (original) The method of claim 10 further comprising doping the source region with a dopant to a concentration of between about 1E14 atoms/cm^3 and about 1E16 atoms/cm^3, and doping the drain region with the dopant to a concentration of between about 1E13 atoms/cm^3 and about 1E15 atoms/cm^3, wherein the source region is doped to a higher doping concentration than the drain region.

12. (original) The method of claim 11 wherein the oxidation ratio of the source region to the drain region is between about 3.8 and about 5.5.

13. (original) A method used to simultaneously oxidize a first semiconductor region having a first doping concentration and a second region having a second doping concentration which is lower than the first doping concentration, comprising the following steps:

placing the first and second semiconductor regions into an oxidation chamber;

in the oxidation chamber, exposing the first and second semiconductor regions to an oxidizing ambient comprising:

a temperature of between about 700°C and about 1100°C;

a hydrogen gas (H_2) flow rate of between about 5.0 SLM and about 10 SLM;

an oxygen gas (O_2) flow rate of between about 0.24 SLM and about 0.65 SLM, wherein a volumetric ratio of H_2O vapor to H_2 gas is between about 0.05 and about 0.15; and

a pressure of between about 760 Torr and about 820 Torr,

wherein an oxidation ratio of the first semiconductor region to the second semiconductor region is greater than one and is variable and selectable with variations in the oxidizing ambient.

14. (original) The method of claim 13 further comprising doping the first semiconductor region with an n-type dopant to a concentration of between about 1E14 atoms/cm^3 and about 1E16 atoms/cm^3 prior to exposing the first and second semiconductor regions to the oxidizing ambient.

15. (original) The method of claim 14 wherein the second semiconductor region is doped with a p-type dopant to a concentration of between about 1E18 to about 3E18 atoms/cm^3.

16. (original) The method of claim 14 wherein the oxidation ratio of the first semiconductor region to the second semiconductor region is between about 3.8 and about 5.5.

17. (new) A method used during the formation of a semiconductor device comprising:

implanting a first region of a semiconductor material with a dopant to a first concentration and implanting a second region of the semiconductor material with the dopant to a second concentration, wherein the first concentration is greater than the second concentration; and

exposing the first and second regions of the semiconductor material to an oxidizing ambient comprising a partial pressure of steam, wherein the partial pressure of steam is proportional to an oxidation ratio of the first region to the second region, and a volumetric ratio of H_2O vapor to H_2 gas is between about 0.05 to about 0.15, and the oxidation ratio is greater than one and variable with variations in the oxidizing ambient.